Designing a Sports Bag

DRIVING QUESTION: How much fabric do we need to design a cylindrical duffel bag with a diameter of 12 inches and a length of 36 inches?

TEKS:

- Draw, create and describe geometric shapes and define the relationships between them.
- Solve real-life and math problems involving angle measure, area, surface area, and volume.

OBJECTIVES:

The goal of this lesson unit is to make it easier for you to gauge how effectively your students can:

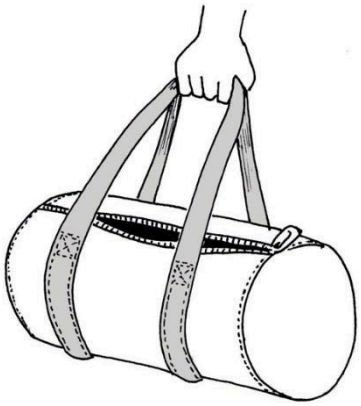
- Recognize and use typical 2D representations of 3D things.
- Find the right formula for calculating a circle's circumference, then use it.
- Choose appropriate mathematical strategies to solve an unstructured problem.
- Analyze a problem situation by identifying limitations and variables, as well as stating assumptions.
- Be able to clearly communicate their reasons.

MATERIALS:

- Mini whiteboard, pencil, an eraser.
- A large sheet of paper, two sheets of light, letter-sized cardboard, scissors, a sticky stick, highlighters.
- Plain paper, poster papers, marker
- Calculator, square paper

Designing a 3D Product in 2D: A Sports Bag

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- The length of the bag will be 20 inches.
- The bag will have circular ends of diameter 11 inches.
- The main body of the bag will be made from three pieces of fabric: a piece for the curved body, and the two circular end pieces.
- Each piece will need an extra ½ inch all the way around it so that the pieces can be stitched together. This is the seam allowance.

Analysing Sample Responses to Discuss

(1) What method has the student used?

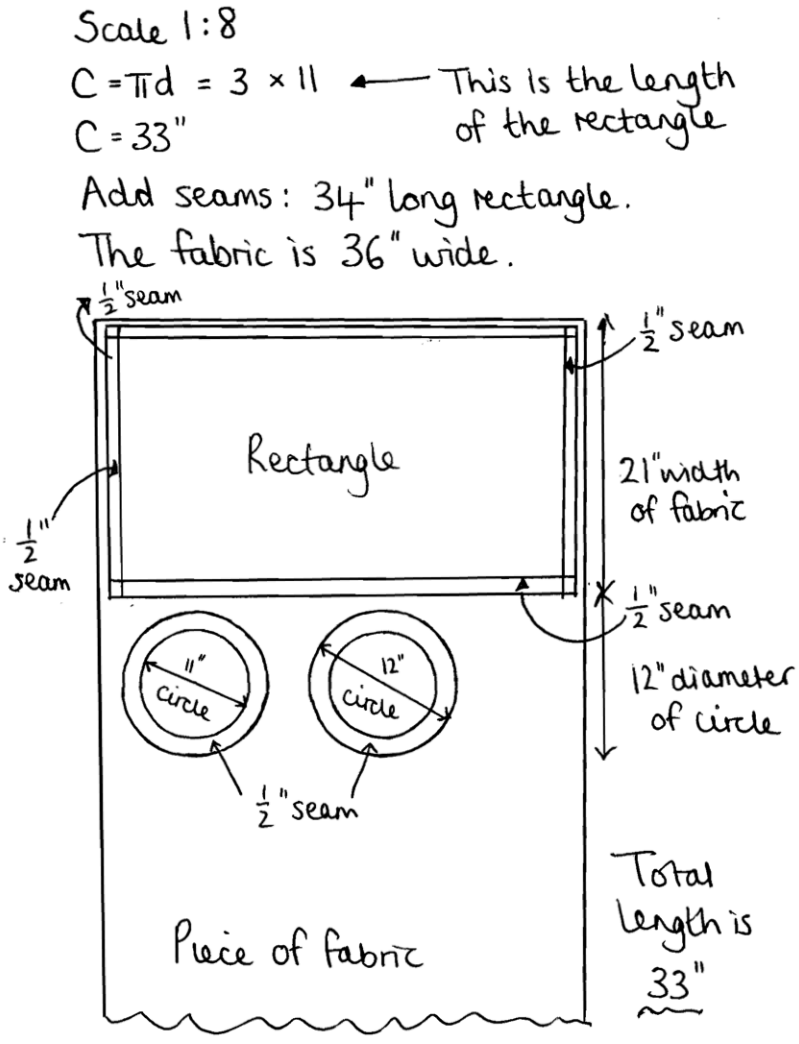
(2) What mistakes have been made?

(3) Has the student made assumptions and if so, what are they?

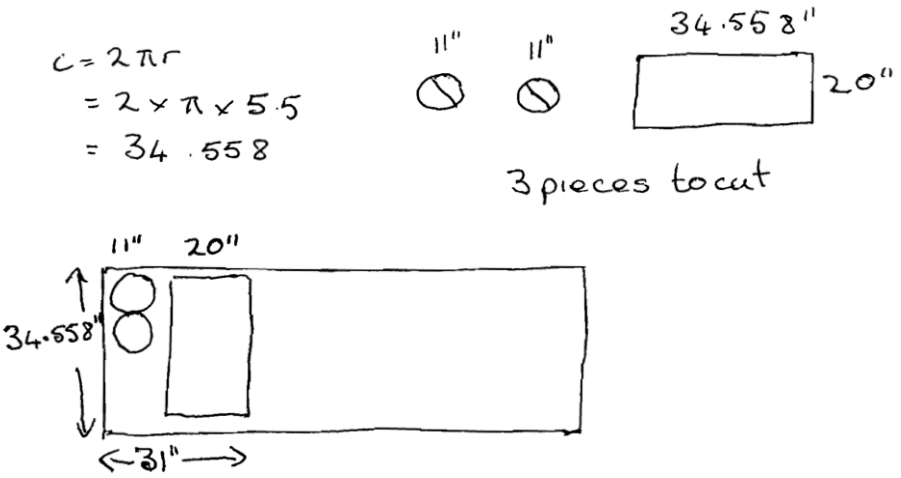
(4) How could the student improve their work?

(5) How has looking at the student work helped you with your own solution to the problem?

Sample Responses to Discuss: Aisha



Sample Responses to Discuss: Ben



Sample Responses to Discuss: Carlotta

